

**Notice of Allowability**

Application No.

09/498,012

Examiner

Herng-der Day

Applicant(s)

JARCHOW, CRAIG M.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Replies received 6/6/05 and 7/5/05.
2. ☒ The allowed claim(s) is/are 1, 3, 12-14, and 21-22, now renumbered as 1-7.
3. ☒ The drawings filed on 08 March 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>07052005</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|   | 9. <input type="checkbox"/> Other _____  |

*RL*

### **DETAILED ACTION**

1. This communication is in response to Applicant's Reply to Office Action dated November 30, 2004, mailed May 31, 2005, received by PTO June 6, 2005, and Applicant's Supplemental Response faxed July 5, 2005.

1-1. Claims 1, 3, 12, and 21 have been amended. Claims 2, 4-11, 15-20, and 23-25 have been cancelled. Claims 1, 3, 12-14, and 21-22 are pending.

1-2. Claims 1, 3, 12-14, and 21-22 have been examined and allowed.

### ***Reasons for Allowance***

2. The following is an Examiner's statement of reasons for allowance:

2-1. The closest prior art of record discloses:

(1) A method of processing seismic data with spectral decomposition (Partyka et al., U.S. Patent 6,131,071).

(2) A maximum entropy analysis of dispersed seismic signals (Cox et al., "Maximum Entropy Analysis of Dispersed Seismic Signals").

(3) A method for multi-attribute identification of structure and stratigraphy in a volume of seismic data (Alam, U.S. Patent 6,278,949 B1).

2-2. Independent claim 1 is directed at a computer implemented method of processing a group of spatially related seismic data traces. Although processing seismic data with spectral decomposition is obvious as disclosed by Partyka et al. in U.S. Patent 6,131,071, this independent claim identifies the distinct combination of features of "generating a frequency

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spectrum of the seismic data within each successively selected window of said seismic data traces by applying a transform to said successively selected windows having poles on a unit  $z$ -circle, where  $z$  is the  $z$ -transform”, “determining the frequency having the greatest amplitude within the frequency spectrum of the seismic data within each said successively selected window”, and “utilizing said determined frequencies having the greatest amplitude within each frequency spectrum having a kurtosis value which exceeds said selected value of kurtosis to generate a seismic display in which horizontal dimension represents distance and vertical dimension represents time, wherein the seismic display represents calculated bed thickness” as shown in Fig. 3A.

Because the closest prior art does not teach or suggest utilizing the frequencies having the greatest amplitude within each frequency spectrum having a kurtosis value which exceeds a selected value of kurtosis to generate a seismic display representing calculated bed thickness”, claim 1 is deemed allowable.

Dependent claims 3 and 12-14 are allowable as they depend on the allowed independent claim 1.

2-3. Independent claim 21 is directed at a computer implemented method of processing a group of spatially related seismic data traces. Although processing seismic data with spectral decomposition is obvious as disclosed by Partyka et al. in U.S. Patent 6,131,071, this independent claim identifies the distinct combination of features of “generating a frequency spectrum of the seismic data within each successively selected window of said seismic data traces by applying a maximum entropy transform to said successively selected windows”, “determining a frequency component having the greatest amplitude within each said frequency

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spectrum", and "utilizing said frequency components having the greatest amplitude within said frequency spectra having a kurtosis value which exceeds said selected value of kurtosis to calculate bed thickness" as shown in Fig. 3A.

Because the closest prior art does not teach or suggest utilizing the frequency components having the greatest amplitude within each frequency spectrum having a kurtosis value which exceeds a selected value of kurtosis to calculate bed thickness", claim 21 is deemed allowable.

Dependent claim 22 is allowable as it depends on the allowed independent claim 21.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Conclusion*

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30. Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

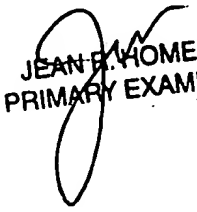
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jean R. Homere can be reached on (571) 272-3780. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day  
July 5, 2005

*H.D.*

  
JEAN E. HOMERE  
PRIMARY EXAMINER